

What is Claimed is:

1. A method for inhibiting apoptosis in a cell, the method comprising contacting the cell with an effective amount of an apoptosis inhibitor selected  
5 from the group of colostrinin, a constituent peptide thereof, an active analog thereof, and combinations thereof.
2. The method of claim 1 wherein the cell is present in a cell culture, a tissue, an organ, or an organism.
- 10 3. The method of claim 1 wherein the cell is a mammalian cell.
4. The method of claim 3 wherein the cell is a human cell.
- 15 5. The method of claim 1 wherein the inhibitor is a constituent peptide of colostrinin.
6. The method of claim 5 wherein the inhibitor is selected from the group of MQPPPLP (SEQ ID NO:1), LQTPQPLLQVMMEPQGD (SEQ ID NO:2),  
20 DQPPDVEKPDLPFQVQS (SEQ ID NO:3), LFFFLPVVNVLP (SEQ ID NO:4), DLEMPVLPVEPFPPV (SEQ ID NO:5), MPQNFYKLPQM (SEQ ID NO:6), VLEMKFPPPPQETVT (SEQ ID NO:7), LKPFPKLKVEVFPPF (SEQ ID NO:8), VVMEV (SEQ ID NO:9), SEQP (SEQ ID NO:10), DKE (SEQ ID NO:11), FPPPK (SEQ ID NO:12), DSQPPV (SEQ ID NO:13), DPPPPQS (SEQ  
25 ID NO:14), SEEMP (SEQ ID NO:15), KYKLQPE (SEQ ID NO:16), VLPPNVG (SEQ ID NO:17), VYPFTGPIPN (SEQ ID NO:18), SLPQNILPL (SEQ ID NO:19), TQTPVVVPPF (SEQ ID NO:20), LQPEIMGVPKVKETMVPK (SEQ ID NO:21), HKEMPFPKYVVEPFTESQ (SEQ ID NO:22), SLTLTDVEKLHLPLPLVQ (SEQ ID NO:23), SWMHQPP (SEQ ID NO:24), QLPPTVMFP (SEQ ID NO:25), PQSVLS (SEQ ID  
30 NO:26), LSQPKVLPVPQKAVPQRDMPIQ (SEQ ID NO:27), AFLLYQE (SEQ ID NO:28), RGPFPILV (SEQ ID NO:29), ATFNRYQDDHGEEILKSL (SEQ ID NO:30), VESYVPLFP (SEQ ID NO:31), FLLYQEPVLGPVR (SEQ

ID NO:32), LNF (SEQ ID NO:33), and MHQPPQPLPPTVMFP (SEQ ID NO:34), and combinations thereof.

7. A method for inhibiting apoptosis in a cell, the method comprising  
5 contacting the cell with an effective amount of an apoptosis inhibitor selected from the group of colostrinin, a constituent peptide thereof, an active analog thereof, and combinations thereof, wherein:

the active analog is an active analog of a constituent peptide of colostrinin selected from the group of SEQ ID NO:1 through SEQ ID NO:34;

10 the active analog comprises a peptide having an amino acid sequence with at least about 15 percent proline and having at least about 70 percent structural similarity to one or more constituent peptides of colostrinin; and

the active analog does not interfere with cellular uptake of redox-sensitive 2',7'-dihydro-dichlorofluorescein-diacetate.

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8. The method of claim 7 wherein the apoptosis is due to DNA damage.

9. The method of claim 7 wherein the cell is present in a cell culture, a tissue, an organ, or an organism.

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10. The method of claim 7 wherein the cell is a mammalian cell.

11. The method of claim 10 wherein the cell is a human cell.

25 12. A method for protecting against DNA damage in a cell, the method comprising contacting the cell with an effective amount of a compound selected from the group of colostrinin, a constituent peptide thereof, an active analog thereof, and combinations thereof.

30 13. The method of claim 12 wherein the cell is present in a cell culture, a tissue, an organ, or an organism.

14. The method of claim 12 wherein the cell is a mammalian cell.

15. The method of claim 14 wherein the cell is a human cell.
16. A method for reducing the toxic effect of  $\beta$ -amyloid on a cell, the method comprising contacting the cell with an effective amount of a compound selected from the group of colostrinin, a constituent peptide thereof, an active analog thereof, and combinations thereof.
17. The method of claim 16 wherein the cell is present in a cell culture, a tissue, an organ, or an organism.
18. The method of claim 16 wherein the cell is a mammalian cell.
19. The method of claim 18 wherein the cell is a human cell.
20. A method for reducing the toxic effect of retinoic acid on a cell, the method comprising contacting the cell with an effective amount of a compound selected from the group of colostrinin, a constituent peptide thereof, an active analog thereof, and combinations thereof.
21. The method of claim 20 wherein the cell is present in a cell culture, a tissue, an organ, or an organism.
22. The method of claim 20 wherein the cell is a mammalian cell.
23. The method of claim 22 wherein the cell is a human cell.
24. Use of a compound selected from the group of colostrinin, a constituent peptide thereof, an active analog thereof, and combinations thereof in the manufacture of a medicament for:
- inhibiting apoptosis in a cell;
  - protecting against DNA damage in a cell;
  - reducing the toxic effect of  $\beta$ -amyloid on a cell; and/or
  - reducing the toxic effect of retinoic acid on a cell.